

## Federal Grain Inspection Service



*Facilitating the marketing of U.S. grain  
for the benefit of American agriculture.*

- *Harnessing Technology*
- *Promoting Standardization*
- *Providing Official Inspection  
and Weighing Services*
- *Protecting Integrity*



# Harnessing Technology

## Automation Initiatives

**Web-Based System.** Competition in the domestic and international grain markets remains extremely tight, increasing the need for companies to improve operational efficiency and customer satisfaction. To play a relevant role in the competitive U.S. grain market, FGIS is adjusting to better serve the emerging market needs by expanding our quality measurement capability, being more flexible to accommodate new marketing practices, and improving service delivery. FGIS has established an interdisciplinary team charged with reengineering and moving inspection-related operations to a web-based environment. FGIS envisions using a web-based system for the inspection and certification processes, data warehousing and real-time retrieval by the official system and our customers, enhancing quality control and assurance systems, providing visual inspection aids, as well as billing, licensing, equipment testing, manuals, and records.

**Grain Inspection Automation at Export Elevators.** A team of GIPSA automation and grain inspection experts, working with the North American Export Grain Association (NAEGA), developed a prototype automated grain inspection system that provides updated grain inspection information five times faster than present manual methods. During FY 2002, GIPSA implemented a prototype automated grain inspection system in Destrehan, Louisiana. Successful operation of the prototype will lead to full implementation of the system in Destrehan, Louisiana, and the issuance of system specifications for commercial deployment of the system in additional locations. When fully implemented, the system is expected to reduce costs to the industry and enhance GIPSA's efficiency.

## Digital Imaging

Digital imaging has great potential for improving the accuracy, consistency, objectivity, and speed of grain inspection and grading. Digital imaging is a process of recording images, in GIPSA's case, of grain, in electronic digital format and then transferring the image to a computer for review and analysis.

**Rice Inspection.** In FY 2002, GIPSA established a program to check the long- and short-term accuracy of field instruments used to measure total broken kernels (TBK) in rice in California and Louisiana. In FY 2003, GIPSA plans to approve the GrainCheck 2312 to officially measure TBK in long-grain milled rice and medium-grain milled rice. GrainCheck technology will be used to develop additional rice inspection applications such as TBK measurement in short-grain milled rice and Brown rice.

**Wheat Inspection.** GIPSA and the Agricultural Research Service (ARS) jointly researched the use of GrainCheck technology for subclass measurements in Durum and Hard Red Spring wheat samples. Initial testing of an ARS-developed Durum wheat calibration showed results equal to or better than those achieved through official visual inspection. In FY 2002, GIPSA, North Dakota State University, and ARS evaluated this calibration using approximately 120 2001-crop Durum samples. For those samples, the calibration gave results inconsistent with visual inspection. The calibration is being further analyzed using a set of prepared samples with well-characterized subclass characteristics. The prepared samples also are being analyzed by official inspection to help set baseline performance standards.

In a separate project, GIPSA initiated a research program using flatbed scanner technology for objective grain inspection. GIPSA also plans to develop software and methodology to use flatbed scanner technology to differentiate between various shades of white wheat as a basis for subclasses. This technology will enable the market to easily and accurately differentiate white wheat best suited for specific end uses, such as Asian noodles, which typically require very white wheat. In FY 2003, ARS and GIPSA will develop calibrations for subclass measurements of Durum and Hard Red Spring wheat samples using a new imaging instrument that represents an update to GrainCheck 2312 technology.

#### **Functional Quality Assessment**

In FY 2002, GIPSA continued investigating using near-infrared transmittance (NIRT) measurements as a rapid means of predicting dough strength and other characteristics for flour made from that wheat on whole wheat kernels. GIPSA collected data on both export samples and a sample set representing a wider protein range to gain a better understanding of the relationship between protein levels and end-use characteristics. Data also were collected on a near-infrared reflectance instrument to help identify kernel characteristics affecting NIRT predictions of dough strength. In FY 2003, GIPSA and ARS will, through a cooperative research agreement, expand this study to include additional near-infrared instrument models and more laboratory end-use quality measurements.

#### **Mycotoxin Methods Development and Test Kit Approvals**

In FY 2002, GIPSA performed 10 mycotoxin test kit evaluations; 6 new test kits were approved for use in the official inspection system. Four test kits for deoxynivalenol were evaluated; three were approved and one was rejected. One aflatoxin test kit was approved and a second rejected; and two fumonisin test kits were evaluated and both approved. GIPSA also requested the submission of zearalenone test kits. In FY 2003, GIPSA will continue to evaluate all submitted mycotoxin test kits for use in the official inspection system.

**Pesticide Residue Method  
Development and Testing**

GIPSA continued to participate in the Pesticide Data Program, a cooperative effort of USDA, the Environmental Protection Agency, and participating States to monitor pesticide residue levels in fruits, vegetables, grain, and milk. GIPSA tests all grain and grain-related products and develops new analytical methods when necessary. In FY 2002, GIPSA developed and validated 3 new methods for barley, and analyzed 440 barley samples and 540 rice samples. In FY 2003, GIPSA will develop and validate 2 new methods for wheat flour and analyze about 740 barley and 500 wheat flour samples.

## Promoting Standardization

### **GIPSA Serving an Evolving Market**

The marketing structure of the U.S. food and feed industry is undergoing significant change as it moves from a supply-driven to a consumer-driven market. The emergence of value-enhanced commodities and a niche market for non-biotechnology-derived commodities have created a greater need to differentiate products in the handling system. In light of these changes, USDA sought public comment, through an Advance Notice of Proposed Rulemaking (ANPR), on how USDA can best foster the marketing of grains, oilseeds, and other commodities in this evolving marketplace. The ANPR, which USDA's GIPSA and AMS published on November 30, 2000, in the *Federal Register* (65 FR 71272), closed on April 16, 2001. As a result of that ANPR, many respondents expressed a clear need for USDA to facilitate the marketing of products, not through the traditional grades and standards, but through the exchange of information and services concerning analytical testing and various marketing mechanisms, such as identity preservation and process verification. In response to market needs, USDA's GIPSA has begun to provide and is planning to develop a variety of programs and services to facilitate the marketing of agricultural products, as discussed below.

**Standardizing Testing Methodology.** The rising importance of value-enhanced products with specific quality attributes and the emergence of a non-biotech niche market have created a need in the marketplace for additional testing and standardization procedures. USDA's experience in providing testing, weighing, and inspection services provides a strong foundation to enhance the accuracy, standardization, and availability of tests for new value-enhanced products. To this end, FGIS has begun to provide a variety of programs and services to meet market needs.

**Process Verification.** Many of the ANPR respondents also described a wide variety of identity preservation and marketing systems used in the private sector. As the market adopts a variety of new marketing mechanisms, such as process verification, to augment traditional marketing approaches in response to changing consumer demands, GIPSA is assessing how the Agency can facilitate the efficient marketing of grain by augmenting, not supplanting, existing market mechanisms.

To that end, GIPSA plans to implement a fee-based, voluntary process verification program to verify the quality systems used to market value-enhanced and specialty grains. This program would facilitate the marketing of grains and provide the grain industry the opportunity to enjoy financial benefits while maintaining minimal Federal involvement in the process. The program will be flexible enough to incorporate, where appropriate, already existing standards and procedures. At the same time, the program will have sufficient safeguards to ensure the integrity of its results. It will be based on ISO 9000 principles, which provide an internationally recognized set of quality standards. GIPSA will add integrity to the program by requiring that all lead auditors be certified as such by the American Society for Quality. Building on GIPSA's reputation for reliability and integrity, the program will offer a "USDA Certification" label to enhance domestic and international buyers' confidence in the product that they receive.

**Sampling Guidelines.** Recognizing that sampling is the single largest source of error in grain analyses, GIPSA developed and offers sampling guidelines to the grain handling industry.

**Proficiency Programs.** At the Agency's Technical Center in Kansas City, Missouri, GIPSA conducted a Proficiency Study to assess the capability and reliability of DNA-based testing for U.S. commercialized biotechnology events in corn. The study indicated a need for standardization and quality assurance tools in biotechnology analysis to improve testing reliability. On February 7, 2002, GIPSA began offering a voluntary Proficiency Program for organizations testing for biotechnology-derived grains and oilseeds.

GIPSA's Proficiency Program includes all commercialized U.S. biotechnology-derived corn and soybeans. Participation in the program continues to increase, with almost half of the participants from outside the United States. The Program had 18 participants in February 2002, 26 in May 2002, and 33 in August 2002. The August 2002 quarterly sample issuance went to 17 U.S. participants, 8 European participants, 4 in Asia, and 4 in South America. Participants used DNA-or protein-based tests, or a combination of both. Results show that the laboratory performance has improved significantly since the Proficiency Study was conducted in FY 2001, but only approximately half of the participants can analyze for all U.S. commercialized biotechnology-derived grains and oilseeds.

GIPSA will continue to offer the Proficiency Program in FY 2003. Currently, participants only report qualitative results, i.e., the event is present or not present, but the need for reliable and accurate quantitative analyses is increasing with the implementation of labeling and threshold regulations. Therefore, in FY 2003, GIPSA plans to expand the program to give participants the option of reporting qualitative and/or quantitative results.

**Rapid Test Performance Evaluation Programs.** The Technical Center's Biotechnology Laboratory evaluates the performance of rapid tests developed to detect biotechnology-derived grains and oilseeds, and confirms the tests operate in accordance with manufacturers' claims. In FY 2002, GIPSA expanded the program beyond its original scope, which was the evaluation of test kits used to detect Cry9C, a protein in StarLink™ corn, to include protein-based tests for other biotechnology events. In FY 2002, GIPSA verified the performance and issued Certificates of Performance for two lateral flow strip tests for StarLink™ corn, three lateral flow strip tests for Roundup Ready™ corn, and three lateral flow strip tests for Roundup Ready™ soybeans. In FY 2003, GIPSA will continue to evaluate the performance of protein-based tests to detect the presence of biotechnology events in grains and oilseeds.

**Methods Development.** GIPSA continues to develop methods and evaluate commercial test instrumentation to measure end-use value attributes, such as oil concentration in soybeans and corn and protein concentration in wheat, corn, and soybeans, that are meaningful to the marketplace.

#### **Quality Assurance/ Quality Control and Oversight Study**

In FY 2000, GIPSA's Grain Inspection Advisory Committee recommended that the Agency conduct a study to determine if the current quality assurance/quality control (QA/QC) and oversight systems could be improved to enhance program efficiency and effectiveness without lessening service quality. The QA/QC program provides data on the consistency and accuracy of official inspection results. Dr. John Surak, Clemson University, an authority in quality systems, conducted the study, which included a thorough review of current practices, organizational structure, and technology used to ensure inspection uniformity nationwide; site visits to interior and export field offices, and official agencies; and interviews of industry representatives. The final report recommended that GIPSA: (1) use computer technology to increase the effectiveness of data collection; (2) use process monitoring techniques and computer technologies to evaluate grading effectiveness; (3) separate the calibration process from the setting of grade limits; and (4) eliminate boundaries for official agencies. Results of the study were shared with the Advisory Committee and placed on the GIPSA web page for public information, and are being considered in long-range planning activities.



## **ISO Certification**

The International Organization for Standardization (ISO) represents the national standards institutes and organizations of over 100 countries, including the American National Standards Institute (ANSI). The American Society of Quality, the European Standards Institute, and the Japanese Industrial Standards Committee are a few of the major quality organizations that have endorsed the ISO Standards, which are becoming the *de facto* standards across industries throughout the world.

GIPSA has successfully met the ISO 9002 Standards and received registration for its moisture, protein, oil, and mycotoxin reference laboratories. In addition, the mycotoxin test kit evaluation and pesticide analysis programs also are registered. In FY 2002, GIPSA began converting from the ISO 9000:1994 Standards to the revised ISO 9000:2000 Standards. The Agency also began preparing the Pesticide Data Program and the Biotechnological Test Kit Evaluation Program to qualify for ISO 17025 accreditation, which are standards dedicated exclusively to increasing and maintaining overall laboratory quality.

In FY 2003, the Pesticide Data Program will have all necessary elements completed for application for ISO 17025 accreditation, and all currently registered programs under ISO 9000:1994 Standards will be registered under the ISO 9000:2000 Standards.

## **Sunflower Oil Measurements**

GIPSA developed a procedure using the MQA 6005 pulsed-nuclear magnetic resonance (NMR) instrument to measure sunflower seed oil without first drying the samples. The method greatly reduces analysis time, which facilitates marketing of sunflower with moisture contents between 4.5 and 10.5 percent. The percent of oil in sunflowers is an important pricing factor. Quicker measurements improve financial transactions between producers and buyers. In FY 2002, GIPSA successfully piloted the new method for sunflowers at the Kansas Grain Inspection laboratory, Colby, Kansas. Limited moisture levels in samples prevented the study from assessing the method on a wider range of moisture levels. In FY 2003, the pilot will expand to include other field locations, additional pulsed-NMR instrument models, and samples with a wider range of moisture.

In FY 2002, GIPSA approved the Oxford Analytical MQA 7005 pulsed-NMR for use in official sunflower oil determinations.

## **NIRT Standardization**

In FY 2002, GIPSA continued working with groups from Canada, Australia, and several European countries to develop and evaluate a global artificial neural network (ANN) near-infrared transmittance (NIRT) calibration for wheat and barley protein. GIPSA modified the standardization of field instruments to reduce average differences between the two calibration approaches. The Agency also began a 1-year pilot test of the barley protein ANN calibration. In FY 2003, GIPSA plans to conduct a second field study to investigate sample-by-sample differences between the calibrations and to better assess the regional market impact of implementing the new calibration for wheat protein.

In FY 2002, GIPSA made bias adjustments to the NIRT Hard Red Winter wheat protein calibration and the Soft White wheat protein calibration to improve agreement with the chemical reference method.

## **Standardizing Commercial Grain Inspection Equipment**

In FY 2002, GIPSA continued cooperative efforts with The National Conference of Weights and Measures, Inc., (NCWM Inc.) and the National Institute for Standards and Technology (NIST) to standardize commercial inspection equipment. GIPSA was the sole evaluation laboratory for grain inspection equipment under the NCWM Inc.'s National Type Evaluation Program (NTEP). GIPSA collected grain moisture meter calibration data for five instrument models.

In FY 2003, GIPSA will collect grain moisture meter calibration data for NTEP models, implement NTEP testing for near-infrared protein and oil analyzers, and provide technical support in the development of an NTEP program for commercial test weight equipment.

## **Moisture Measurement 1999-2001 Methods**

GIPSA conducted basic grain moisture research in fiscal years

to measure and characterize dielectric response over a 1 to 501 MHz frequency range for 15 major U.S. cereal grains and oilseeds. These data were used to develop a Unified Moisture Algorithm, a single calibration that can be used for all grain types, and that provides prediction accuracy equal to that of individual grain calibrations available on current moisture meter designs. In FY 2002, GIPSA continued to collect dielectric data and refine the Unified Moisture Algorithm, and worked with manufacturers to assess their interest in developing prototype meter designs that will use the moisture algorithm and to identify how best to support and encourage manufacturer efforts.

In FY 2003, GIPSA plans a collaborative research effort with ARS and academia to define test cell design and performance parameters needed to support manufacturer development of prototype meters capable of using the moisture algorithm. GIPSA will continue to collect dielectric data and expand the calibration database to include additional grain types.

**Research Collaboration  
with NIST**

In FY 2002, GIPSA established formal research collaboration with NIST on developing reference materials and methods for DNA-based testing. Using information obtained through confidentiality agreements with life science organizations, GIPSA and NIST produced event-specific plasmids for evaluation as reference materials and the development of reference methods. GIPSA and NIST have collaborated in the evaluation of sample grinding and DNA isolation procedures. This work will be submitted to a peer-reviewed journal in FY 2003.

In FY 2003, GIPSA and NIST will continue this collaboration by exploring new technologies for DNA-based testing and developing reference materials and methods.

**Reference Method Analyses**

GIPSA maintains reference methods for protein, moisture, oil, and mycotoxins that are used to maintain the accuracy of testing in the official inspection system. The protein, moisture, and oil reference analyses support the standardization of the NIRT (protein), moisture meter, and NMR (oil) instruments used for rapid inspection at field locations performing official testing. The mycotoxin reference analyses support the evaluation and standardization of test kits used at official testing locations. In FY 2002, GIPSA performed 4,096 reference moisture analyses, 2,236 reference protein analyses, and 533 reference oil analyses on grains and oilseeds. Approximately 350 mycotoxin reference analyses were performed on grains and processed-grain commodities. In FY 2003, GIPSA will continue to provide quality reference method analyses to support the maintenance of accurate field testing by the official inspection system.

**Digitizing Visual  
Reference Material**

In FY 2002, GIPSA converted the visual reference aids for corn, rice, soybeans, and sorghum from 35mm slides to digital color prints. In FY 2003, GIPSA will convert the visual reference aids for wheat, barley, canola, flaxseed, oats, rye, rapeseed, and sunflower seed. These new visual aids are more reliable and user-friendly than the slides previously used. In addition, the digital imaging process is more efficient and affordable than the traditional film reproduction process.

**Educational Materials**

In FY 2002, GIPSA produced multimedia educational materials for training official personnel and educating the grain industry. More than 10,000 educational CDs were distributed to official inspection offices, grain handling and processing firms, producers, foreign grain buyers, government agencies, and educational institutions.

GIPSA developed an internal training CD on the quality assurance database program and began developing a sorghum grading CD. GIPSA also produced Spanish versions of the corn, soybean, and wheat grading CDs for distribution at grain grading schools held in Mexico.

In FY 2003, GIPSA will continue to develop new multimedia content for distribution on CDs and versions of existing content for distribution via the Internet.

**Rice Cooperative  
Research Agreement**

Milling yield, expressed in terms of total rice and whole kernels, is an important measure of rice quality. The accuracy and consistency of this measurement is critically important to rice millers and for the efficient marketing of rough rice. Unfortunately, the operational performance of currently approved laboratory milling and shelling technology is erratic and not conducive to orderly marketing. There also is growing concern about the availability, quality, and consistency of new equipment and replacement parts from the sole source vendor.

In response to these concerns, GIPSA is negotiating a research agreement with the University of Arkansas to determine the effectiveness and performance of other rice miller/sheller technology. Evaluation of alternative shellers will be targeted first, since the sheller has proven to be more problematic in the past. Depending on the success of this endeavor, GIPSA will pursue a similar arrangement involving an evaluation of alternative millers.

**Cracked Corn  
Inspection Procedures**

Cracked corn is rapidly becoming a major export commodity for the grain industry. The official inspection system was asked to certify the quality of a dramatically greater volume of U.S. exports of cracked corn to Mexico during FY 2002. In response to this new export market, GIPSA developed procedures to standardize the testing, inspection, and certification process.

**U.S. Standards for Wheat**

GIPSA plans to publish in the *Federal Register* a proposed rule to revise the U.S. Standards for Wheat by inserting subclasses in the definition of the class Hard White wheat. The creation of subclasses would facilitate the marketing of Hard White wheat by delineating the desirable quality factors of both lighter and darker colored kernels, thereby helping American wheat producers capture greater value for their product. The proposed rule also would change the definition of Contrasting Classes for Hard Red Winter wheat and Hard Red Spring wheat.

**U.S. Standards for Lentils**

On May 6, 2002, GIPSA published in the *Federal Register* (67 FR 30354) a notice with opportunity to comment on changes to the U.S. Standards for Lentils. GIPSA solicited comments on the need to modify the definitions for “good” and “fair” color lentils; to establish “poor color lentils” as an additional color factor; to establish “contrasting lentils” as a new grading factor; and to expand the definition of damaged lentils to include “immature lentils.” Based on comments received and other available data, GIPSA implemented these changes on July 1, 2002.

**U.S. Standards for Rice**

GIPSA plans to publish a direct final rule during calendar year 2002 to amend the U.S. Standards for Rice to establish and add “hard milled” rice as a new milling degree level and to eliminate reference to “lightly milled” from the milling requirements of U.S. Standards for Milled Rice. These changes will facilitate the marketing of rice by better aligning the standards with current processing and marketing practices.

## **Briefings with Visiting and Governmental**

GIPSA personnel frequently meet with delegations visiting the United States from other countries to brief them on the U.S. grain marketing system, the national inspection and weighing system, official U.S. grain standards, and GIPSA's mission. Many of these delegations are sponsored by USDA Cooperator organizations, including U.S. Wheat Associates and the U.S. Grains Council, which arrange visits to grain production areas, GIPSA headquarters and field offices, onsite laboratories at export grain elevators, and the Agency's Technical Center in Kansas City, Missouri. At the Technical Center, delegations sometimes receive technical training on analytical testing procedures and grain inspection methods and procedures.

Briefings are tailored to address each group's interests and concerns. Topics range from explanations of the various services available from GIPSA, the Agency's use of the latest technology to provide grain traders with accurate and reliable inspection and weighing information and, for importers or potential importers new to the U.S. grain market, information on contracting for the quality they desire.

These briefings foster a better understanding of the U.S. grain marketing system, the official U.S. grain standards, and the national inspection system, and enhance purchasers' confidence in U.S. grain.

### **Summary of Briefings with Visiting Trade and Governmental Teams In Fiscal Year 2002**

Algeria	Nigeria
Asia	Norway
Australia	Oman
Azerbaijan	Panama
Bosnia	Peru
Botswana	Philippines
China	Romania
Costa Rica	Russia
Estonia	Saudi Arabia
European Union	Serbia
France	South Africa
Japan	South Korea
Kazakhstan	Sri Lanka
Latvia	Tanzania
Mexico	Thailand
Middle East	Trinidad
Moldova	Turkey
Morocco	Uganda
Mozambique	Uzbekistan
Namibia	Vietnam
New Zealand	Yemen

## **International Outreach**

In FY 2002, GIPSA continued to respond to customers' needs for technical assistance overseas. Exporters, importers, and end users of U.S. grains and oilseeds, as well as other USDA agencies, USDA Cooperator organizations, and other governments, frequently ask for GIPSA personnel to travel overseas. These activities include representing the Agency at grain marketing and grain grading seminars, meeting with international governments and grain industry representatives to resolve grain quality and weight discrepancies, helping other countries develop domestic grain and commodity standards and marketing infrastructures, assisting importers with quality specifications, and training local inspectors in U.S. inspection methods and procedures. This year, GIPSA received 24 requests for technical assistance overseas.

Such activities typically have been funded through various programs administered by the Foreign Agricultural Service and Farm Service Agency, directly by USDA Cooperators, or by GIPSA's Office of International Affairs (OIA). A 1995 amendment to the U.S. Grain Standards Act extended GIPSA the authority to charge and be reimbursed for travel, salary, and related expenses when a customer requests consultative expertise. The Agency's authority to recover costs for providing consultative services has enhanced our ability to facilitate marketing of U.S. grains, oilseeds, and related commodities.

Highlights of GIPSA's FY 2002 international outreach activities include: helping conduct assessments for USAID/ATRIP-funded initiatives involving agricultural standards, harmonization, and transportation management in South Africa, Botswana, Namibia, Mozambique, Kenya, Tanzania, and Uganda; initiating a 3-month regional assignment in Asia to address immediate and long-term issues in the region relating to GIPSA; participating in several international biotech conferences and meetings; meeting with Taiwanese authorities to clarify differences between U.S. rice standards and inspection procedures and Taiwanese specifications; and helping USDA cooperators establish a grain inspection laboratory and training local inspectors in Syria.

**Summary of Activities Involving International Travel in  
Fiscal Year 2002**

<i>Purpose</i>	<i>Number of Travelers</i>	<i>Country Visited</i>	<i>Dates of Visit</i>
1. To participate in the North American Export Grain Association (NAEGA)/ APPAMEX Annual Trade Forum.	1	Mexico	10/25 - 10/28/01
2. To provide export services on a cargo of U.S. flaxseed being loaded in Canada.	1	Canada	11/17 – 11/20/01
3. To participate in a Value-Added Workshop for Central and South America at the request of U.S. Grains Council.	1	Panama	01/07 – 01/12/02
4. To make a presentation at the Regional Codex Workshop.	1	Hong Kong	01/14 – 02/03/02
5. To assist in the investigation of a rice quality discrepancy.	1	Haiti	01/21 – 01/26/02
6. To participate in a Foreign Agricultural Service regional biotech conference (for Europe, Africa, and the Middle East).	1	Tunisia	01/27 – 01/31/02
7. To participate in technical discussions regarding China's implementation of new biotech regulations.	1	China	02/02 – 02/07/02
8. To make a quality assurance presentation at the U.S. Wheat Associates Wheat Trading Seminar.	1	Egypt	02/06 – 02/13/02
9. To meet with Canadian Government officials regarding implementation of the Biosafety Protocol.	1	Canada	02/26 – 02/27/02
10. To participate in the CODEX Biotech Analytical Methods Meetings.	1	Japan	02/27 – 03/07/02

<i>Purpose</i>	<i>Number of Travelers</i>	<i>Country Visited</i>	<i>Dates of Visit</i>
11. To participate in the Grain Elevator and Processing Society Exchange 2002.	2	Canada	02/28 – 03/12/02
12. To conduct an assessment for the U.S. AID-funded activities in agricultural standards, harmonization, and transportation management.	1	South Africa, Botswana, Namibia, Mozambique	02/28 – 03/17/02
13. To meet with Chinese Government officials regarding implementation of their biotech regulations.	1	China	03/04 – 03/08/02
14. To participate in Technical Experts Group meetings on implementation of the Biosafety Protocol.	1	Canada	03/12 – 03/21/02
15. To meet with Chinese grain inspection personnel for technical exchanges, and to work with representatives from U.S. Wheat Associates to promote export of U.S. wheat.	3	China	03/16 – 03/29/02
16. To participate in the negotiations on implementation of the Cartagena Biosafety Protocol.	1	Netherlands	04/20 – 04/27/02
17. To initiate a 3-month regional assignment to address immediate and long-term regional issues relating to GIPSA, and to develop relationships with overseas customers, USDA Cooperators, and government officials.	1	Malaysia, Indonesia, Philippines, Vietnam, Singapore, China	04/16 – 07/27/02



<i>Purpose</i>	<i>Number of Travelers</i>	<i>Country Visited</i>	<i>Dates of Visit</i>
18. To establish a grain inspection laboratory and train local inspectors at the request of U.S. Grains Council.	1	Syria	05/09 – 05/17/02
19. To participate in the Foreign Agricultural Service <i>Biotechnology in Asia Conference</i> .	1	Sri Lanka	05/11 – 05/17/02
20. To participate in the 2 <sup>nd</sup> International Conference on Grain, Flour, and Bread Quality (Russia) and the ICC International Association for Science and Technology (Hungary).	1	Russia, Hungary	05/19 – 05/30/02
21. To attend meetings with Chinese Government officials regarding their biotechnology regulations.	1	China	05/28 – 06/01
22. To meet with the U.S. Agricultural Attache', USDA Cooperators, North American Export Grain Association members to discuss GIPSA's outreach activities.	1	Mexico	06/09 – 06/13/02
23. To meet with Taiwanese authorities to discuss U.S. rice standards and inspection procedures to clarify differences between U.S. standards and Taiwanese specifications to facilitate exports of U.S. rice.	1	Taiwan	06/28 – 07/03/02
24. To meet with Brazilian Government officials and scientists at a technical workshop on biotechnology.	1	Brazil	08/18 – 08/24/02
25. To provide export services on a cargo of U.S. wheat being loaded in Canada.	1	Canada	08/20 – 08/23/02

<i>Purpose</i>	<i>Number of Travelers</i>	<i>Country Visited</i>	<i>Dates of Visit</i>
26. To provide export services on a cargo of U.S. wheat being loaded in Canada.	1	Canada	08/27 – 08/31/02
27. To participate in the APEC Workshop on Technical Cooperation Exchange on Safety Assessments in Agricultural Biotechnology.	1	Taiwan	08/27 – 08/31/02
28. To conduct an assessment for East African harmonization of standards and transportation management to foster agricultural trade.	1	Kenya, Tanzania, Uganda	08/29 – 09/14/02
29. To participate in the XXIV National Congress of Corn and Sorghum.	1	Brazil	08/31 – 09/06/02
30. To meet with government and industry officials to discuss biotech regulations, recent U.S. <i>Federal Register</i> announcements concerning biotech policy, USDA marketing initiatives, including process verification, and StarLink™ corn.	1	China, Japan, Korea	09/03 – 09/13/02

## **Providing Official Inspection and Weighing Services**

### **Bulk Rice Inspection**

Based on findings of a 2001 study on the impact of bulk handling on rough rice quality, GIPSA designed and implemented a program under which bulk rice is officially inspected at an interior location and identity preserved during shipment to export. The new inspection program eliminates redundant inspections and improves the efficiency of rice marketing.

### **Review Inspections**

GIPSA published a proposed rule in the *Federal Register* on August 21, 2002, soliciting public comment on revising the regulations on reinspections and appeal inspections under the U.S. Grain Standards Act. Currently, reinspections and appeal inspections for grade must review all official factors that: (1) may determine the grade; (2) are reported on the original certificate, or (3) are required to be shown. GIPSA considers this an inefficient and costly regulatory requirement. GIPSA proposed allowing interested parties to specify which official factor(s) should be redetermined during the reinspection or appeal inspection service. To safeguard against inadvertent misgrading, official inspectors may assess other factors, as necessary. GIPSA plans to publish the final rule during FY 2003.

### **Standards for USDA Farm Programs**

USDA farm programs for deficiency payments and crop insurance typically rely on the official U.S. standards to determine eligibility and payment. Federal crop insurance coverage for crambe seed and millet seed was not available to interested producers this year because Federal inspection procedures did not exist for the commodities. To help producers, GIPSA, working with the USDA Risk Management Agency, established uniform inspection procedures for crambe and millet this year to help farmers meet crop insurance eligibility requirements. GIPSA implemented these procedures on April 5, 2002, under the Agricultural Marketing Act of 1946.

### **Laboratory Scales**

A GIPSA review of requirements for official grain test scales found that laboratory scale specifications could be relaxed without adversely affecting grading accuracy. Specifically, GIPSA found that increasing the division size and using scales with expanded resolution did not diminish accuracy. GIPSA modified procedures to allow the use of commercial grain inspection scales, which are sometimes less expensive than officially approved instruments, for certain official applications.

**Railroad Track Scale  
Testing Program**

As mandated by the USGSA, GIPSA's railroad track scale testing program annually tests all official grain railroad track scales. Under an agreement with the Association of American Railroads, GIPSA also tests railroad master scales across the Nation. Finally, GIPSA provides track scale type evaluation services under the National Institute of Standards and Technology's National Type Evaluation Program. GIPSA optimizes its track scale testing equipment and scale inspector resources to the fullest extent by offering track scale testing services to the railroad industry. Five GIPSA-owned track scale test cars criss-cross the Nation; GIPSA scale inspectors perform track scale testing on a private railroad's behalf using railroad-owned test cars.

**Inspection Program Data Fiscal Years 2000-2002**

Item	Fiscal Years		
	2000	2001	2002
Quantity of Grain Produced <sup>1</sup> (Mmt) <sup>2</sup>	406.6	417.8	402.3
Quantity of Grain Officially Inspected (Mmt)			
Domestic	128.3	128.7	131.0
Export by GIPSA	84.3	78.8	81.5
by Delegated States/Official Agencies	<u>26.1</u>	<u>27.1</u>	<u>24.4</u>
Total	238.7	234.6	236.9
Delegated States/Official Agencies			
Delegated and Designated States	8	8	8
Designated States	7	7	7
Private Agencies	<u>44</u>	<u>44</u>	<u>43</u>
Total	59	59	58
State/Private Agency AMA Agreements	15	14	19
Number of Official Original Inspections and Reinspections			
GIPSA	119,409	111,802	101,568
Delegated States/Official Agencies	<u>1,824,224</u>	<u>1,798,906</u>	<u>1,728,016</u>
Total	1,943,163	1,910,708	1,829,584
<i>(continued)</i>			

<sup>1</sup> Source: USDA Crop Production Reports.

<sup>2</sup> Million metric tons.

Item	Fiscal Years		
	2000	2001	2002
Number of Grain Inspection Appeals			
Field Offices	3,103	3,105	3,700
Board of Appeals and Review	254	431	530
Number of Commercial Inspections			
GIPSA	9	0	36
Delegated States/Official Agencies	<u>532,232</u>	<u>629,802</u>	<u>677,849</u>
Total	532,241	629,802	677,885
Number of Wheat Protein Inspections			
GIPSA	37,971	33,046	20,246
Delegated States/Official Agencies	<u>462,239</u>	<u>436,161</u>	<u>387,610</u>
Total	500,210	469,207	407,856
Number of Soybean Protein and Oil Inspections			
GIPSA	17,977	17,320	16,425
Delegated States/Official Agencies	<u>4,023</u>	<u>8,706</u>	<u>19,910</u>
Total	22,000	26,026	36,335
Number of Aflatoxin Inspections	62,701	61,234	66,062
Number of DON Inspections	37,875	41,134	50,017
Number of StarLink™ Tests	--	220,222	101,560
Quantity of Rice Inspected (Mmt) (milled basis)	3.3	3.1	2.8

**Weighing Program Data Fiscal Years 2000-2002**

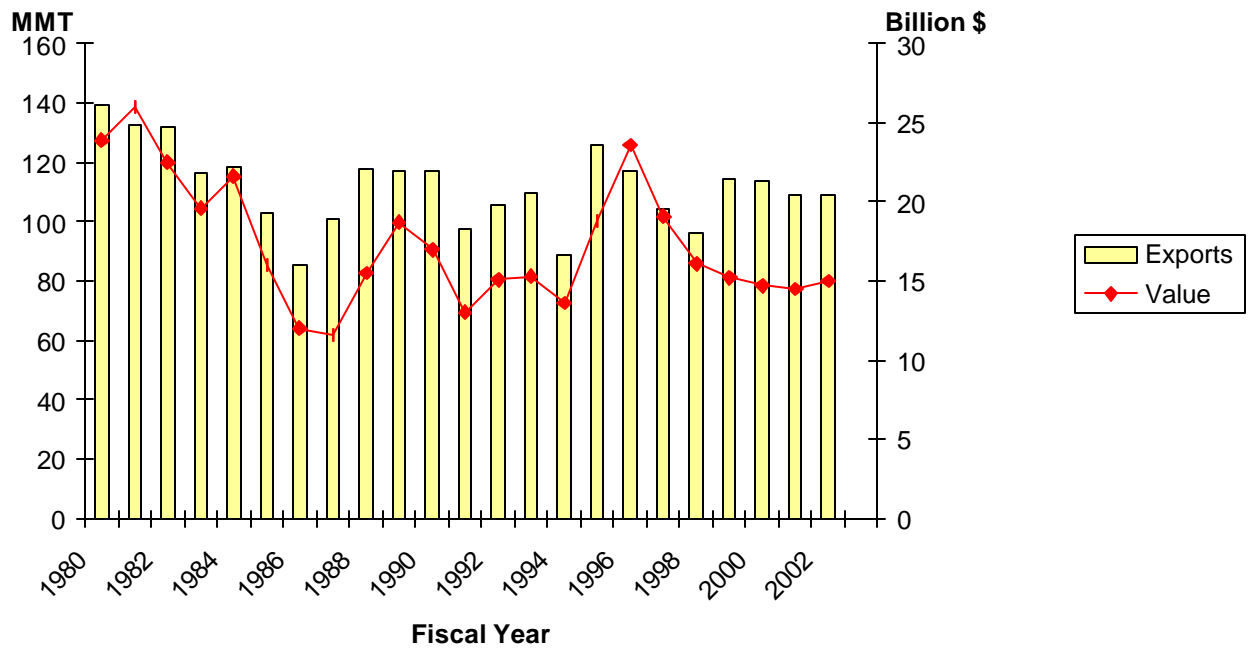
Item	Fiscal Years		
	2000	2001	2002
Official Weight Certificates Issued			
GIPSA			
Class X <sup>1</sup>	76,689	73,420	72,131
Class Y <sup>2</sup>	<u>12,666</u>	<u>15,916</u>	<u>5,974</u>
Total	89,355	89,336	78,105
Delegated States/Official Agencies			
Class X <sup>1</sup>	18,974	30,471	24,313
Class Y <sup>2</sup>	<u>105,353</u>	<u>110,016</u>	<u>101,191</u>
Total	124,327	140,487	125,504
Exported Grain Weighed (Mmt)			
GIPSA	84.3	78.8	81.5
Delegated States	<u>21.1</u>	<u>21.7</u>	<u>19.1</u>
Total	105.4	100.5	100.6
Number of Certified Scales in Service			
Export Elevators	258	250	250
Number of Railroad Track Scales Tested	186	250	250

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<sup>1</sup> Class X weighing involves 100 percent supervision.

<sup>2</sup> Class Y weighing involves a minimum of 25 percent supervision.

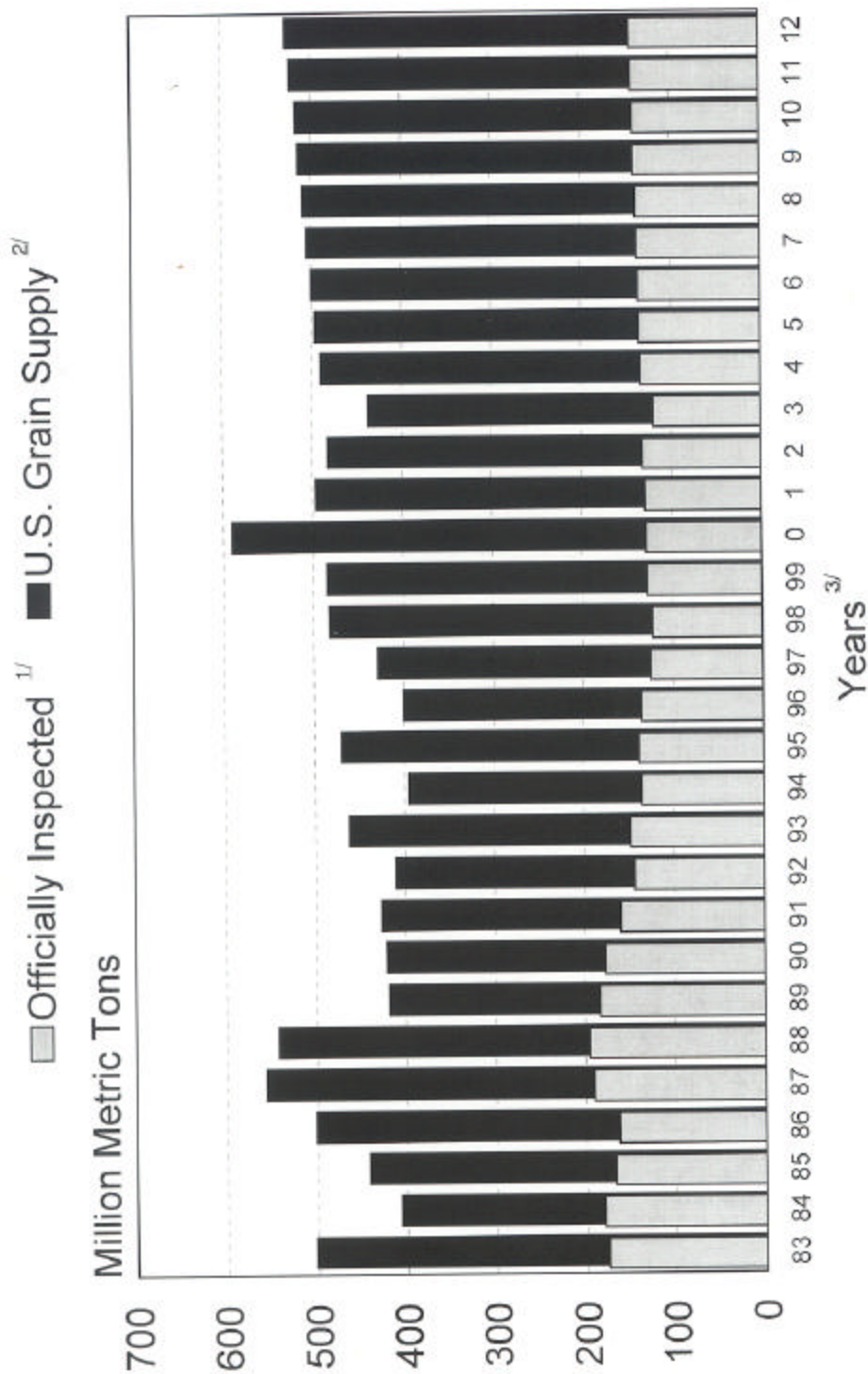
## U.S. Grain, Oilseed, and Rice Exports: Volume and Value



Sources: FGIS Export Grain Inspection System and the USDA Economic Research Service

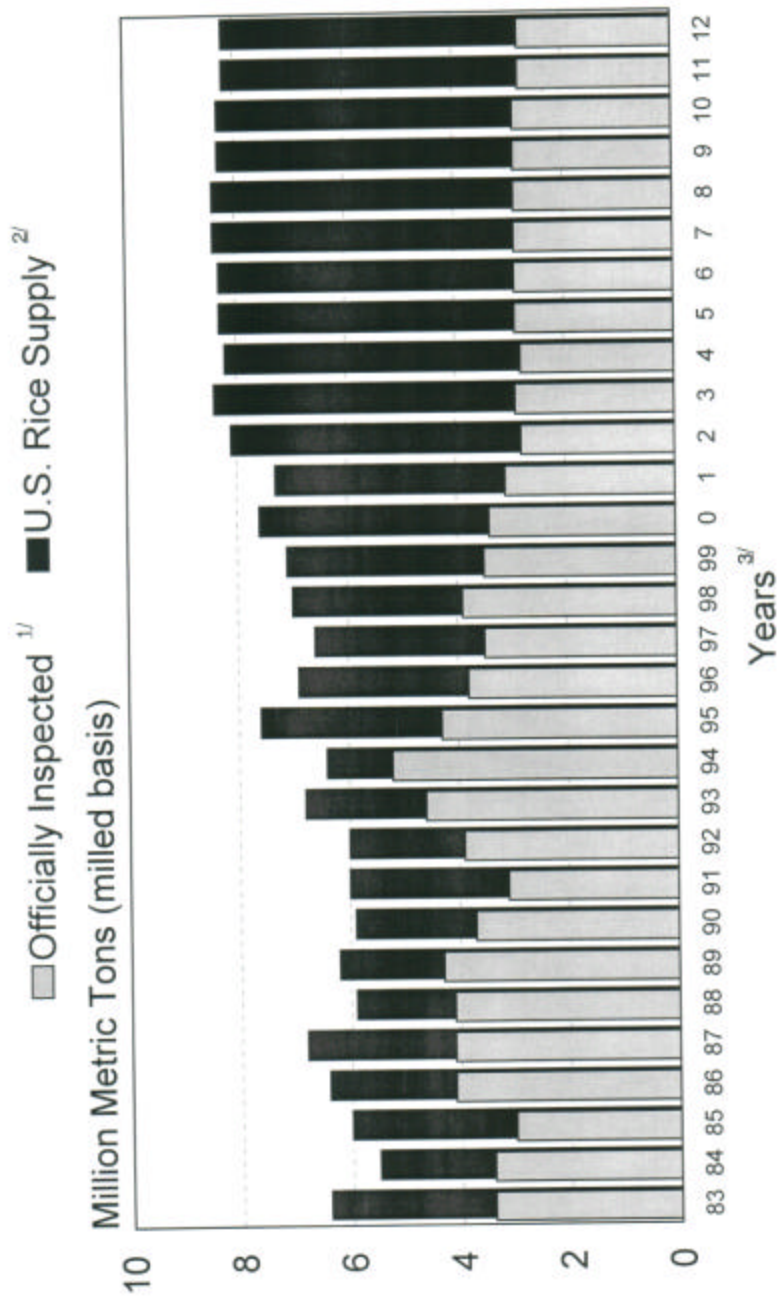


# U.S. DOMESTIC GRAIN INSPECTIONS



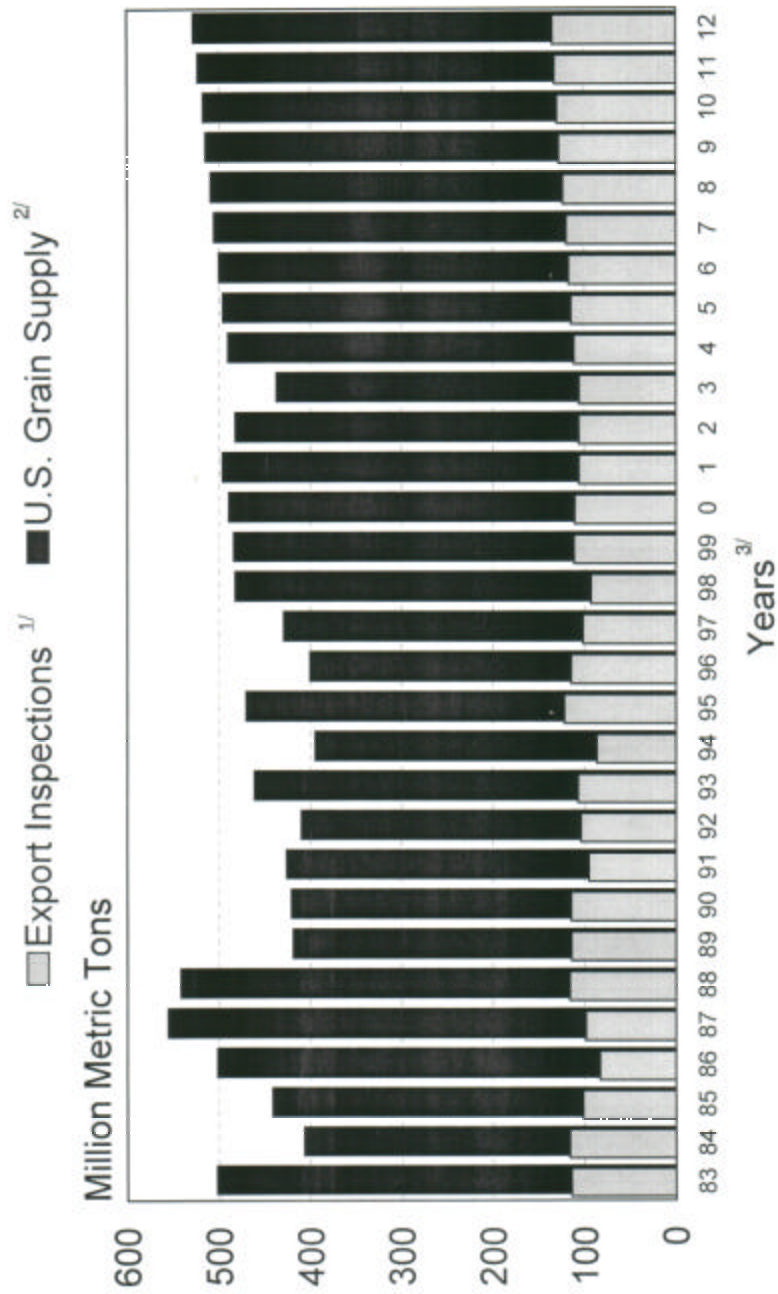
Source:  
 1/ FGIS, GIWIS for 1983 - 02 and 2002 inspection rate (27.2%) applied to estimated supplies for 2003 - 2012.  
 2/ USDA, ERS market year figures for 1983 -2000, WASDE (Oct. 11, 2002) for 2001-2003 and WAOB baseline projections for 2004 - 2012.  
 3/ Domestic inspections are reported by fiscal years and U.S. grain supplies are by marketing years.

## U.S. RICE INSPECTIONS



Source:  
 1/ FGIS, AMA Output Reports for 1983 - 02 and 2002 inspection rate (34.6% ) applied to estimated supplies for 2003-2012.  
 2/ USDA, ERS market year figures for 1983 - 2000, WASDE (Oct. 11, 2002) for 2001 - 2003, and WAOB baseline projections for 2004- 2012.  
 3/ Inspections are reported by fiscal years and U.S. rice supplies are by marketing years.

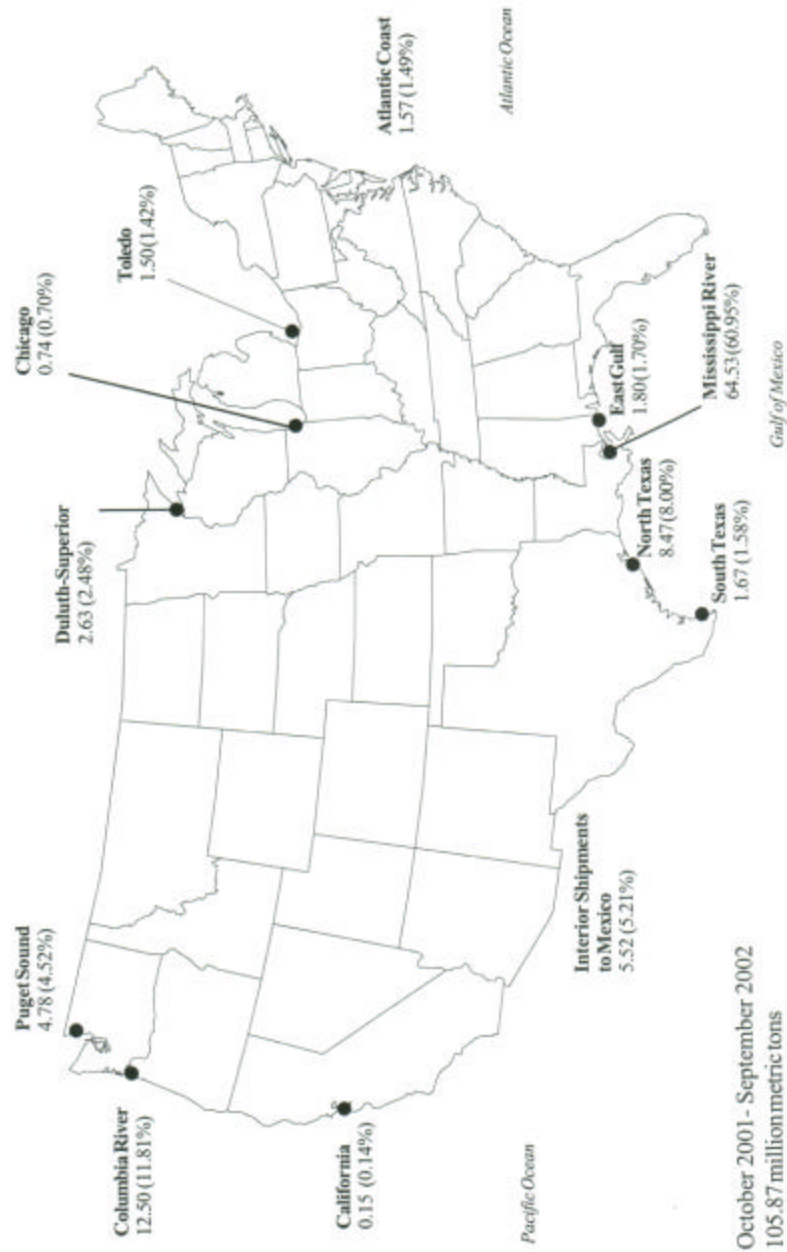
## U.S. EXPORT GRAIN INSPECTIONS



Source:  
 1/ FGIS, EGIS for 1983 - 02, WASDE (Oct 11, 2002) for 2003, and WAOB baseline projections for 2004-2012.  
 2/ USDA, ERS market year figures for 1983 - 00, WASDE (Oct 11, 2002) for 2001-2003, and WAOB baseline projections for 2004-2012.  
 3/ Export inspections are reported by fiscal years and U.S. grain supplies are by marketing years.

# **Volume of U.S. Grain Inspected for Export by Area Fiscal Year 2002**

Million Metric Tons



## **Protecting Integrity**

### **Alleged Violations**

At the beginning of FY 2002, 6 cases involving alleged violations of the USGSA and the AMA were pending further action. During FY 2002, GIPSA personnel opened 12 cases relating to the following alleged violations: improper procedures, improper sampling/sample manipulation, deceptive grain handling practices, false weighing, violating export grain requirements, employee misconduct, and mismanagement. The Agency closed 7 cases during FY 2002, leaving 11 cases pending at the end of the fiscal year.

GIPSA took administrative action in 4 of the 7 cases closed during FY 2002. These included informational letters to 1 official agency employee and 3 GIPSA managers, and 1 cautionary letter to GIPSA personnel. Two cases, which did not involve violations of the AMA and USGSA, were returned to the Office of Inspector General, USDA, for referral to other agencies. The other case was closed due to insufficient evidence to prove a violation occurred.

Also during FY 2002, the Office of Inspector General, USDA, and the Justice Department continued to pursue criminal action in an investigation involving false certification and weights of grain. During 2002, five subjects pled guilty and were sentenced for charges including submitting false grain inspection certificates (issued under the U.S. Warehouse Act), conspiracy, and filing false income tax returns. Sentences handed down to these subjects included 23 months' imprisonment and 3 years' supervised release with payment of \$1,451,691.20 in restitution, and 3 months' imprisonment and 1 year supervised release with payment of \$5,410.35 in restitution. The case remains open in the courts.

### **Compliance Reviews**

Compliance reviews are independent third-party examinations of GIPSA's grain inspection field operations, which includes reviews of GIPSA field offices and suboffices, and State and private official agencies. During FY 2002, GIPSA personnel conducted compliance reviews of two GIPSA field offices and one suboffice, and official agencies. Teams of reviewers evaluated customer satisfaction (including potential service delivery discrimination), management effectiveness and efficiency, and procedural compliance. During the reviews, GIPSA found no instances of service delivery discrimination. All identified noncompliance items were subsequently corrected. None of the findings appear to have affected the overall integrity of GIPSA's mission or programs, or the national inspection system. Overall, field offices, suboffices, and official agencies are performing satisfactorily.

**Delegation and Designation Programs**

Fifty-eight (58) official agencies are designated by GIPSA under the U.S. Grain Standards Act, as amended, to provide permissive official inspection and/or weighing services at domestic locations. Of these, eight are States that are also delegated to provide mandatory official inspection and weighing services at export locations. Delegations are permanent unless GIPSA or the State terminates the agreement.

Under the triennial renewal process, 20 official agency designations automatically terminated in FY 2002. GIPSA renewed 19 of the 20 for full 3-year terms after reviewing their performance. One official agency designation was cancelled due to poor performance and customer service complaints. Its geographic area was assigned to two existing official agencies that performed satisfactorily.

**Conflicts of Interest**

At the beginning of FY 2002, three designated official agencies were operating with discretionary conflict-of-interest waivers. All three agencies remain designated with conflict-of-interest waivers.

**Drug-Free Workplace**

As each designated official agency becomes eligible for designation renewal, it must certify to GIPSA that it provides a drug-free workplace. Each of the 18 agencies renewed in FY 2002 provided this certification.

**Registration**

During calendar year 2002, GIPSA issued 83 Certificates of Registration to individuals and firms involved in foreign commerce grain business.

**Pilot/Exceptions Programs**

In FY 2002, GIPSA continued operation of three exception programs to provide the Agency with information on the effect of allowing more than one designated official agency to inspect or weigh grain in a single geographic area. On July 3, 2002, GIPSA proposed a rule to amend the regulations under the Act to include these exceptions.

The first exception program assesses the effect on timeliness of service provision. Under the program, official agencies may provide service to facilities located outside of their assigned geographic area on a case-by-case basis when official service cannot be provided within established timeframes. During FY 2002, there were no reports of the timely service exception being used.

The second exception program allows an "open season" during which official agencies can offer their services to facilities outside their assigned area if no official service has been provided there during the previous 3 months. During FY 2002, 87 facilities received 27,802 inspections under this program. This included 571 for barges, 27,159 for railcars, and 72 other inspections (e.g., trucks and containers).

The third exception program allows customers shipping grain in barges to select any official agency to probe-sample and inspect the grain. During FY 2002, 5 facilities received 76 barge inspections under this program.

**Summary of Complaints Reported by Importers on Inspection and Weighing Fiscal Year 2002**

<i>Complainant</i>	<i>Grain</i>	<i>Number of Complaints</i>	<i>Nature of Complaint</i>
<b>Africa and Middle East</b>			
Egypt	Wheat	1	Protein
	Corn	1	Broken corn and foreign material
Eritrea	Sorghum	1	Broken kernels and foreign material
Morocco	Wheat	1	Dockage, foreign material
<b>Asia</b>			
Indonesia	Soybeans	1	Foreign material
Vietnam	Wheat	1	Falling Number
<b>Europe</b>			
Spain	Wheat	1	Dockage
<b>Latin America</b>			
Colombia	Corn	1	Soybean meal
Ecuador	Wheat	1	Protein, damaged kernels
<b>TOTAL</b>		<b>9</b>	

